



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
LEVINE ET AL.

Serial No. 09/656,393

Filing Date: September 6, 2000

Confirmation No. 9357

For: **SYSTEM AND METHOD FOR
MANAGING MOBILE WORKERS**

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) Examiner: A. Boyce
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) Art Unit: 3623
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SUPPLEMENTAL DECLARATION UNDER 37 CFR §1.131

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Commissioner for Patents
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GROUP 3600

Sir:

We, **GARRY FENIMORE** and **KENNETH M. LEVINE**, do hereby
declare and state:

1. We are the joint inventors of claims 1-49 of the
above-identified patent application.

2. This Supplemental Declaration is submitted in
response to the Office Action mailed June 28, 2004, in which
claims 1, 4, 6, 9, 10, 12-19, 22, 23, 43, 45 and 48 were rejected
as anticipated under 35 U.S.C. §102(e) by U.S. Patent No.
6,571,215 to Mahapatro (hereinafter "Mahapatro"), having an
effective filing date of January 21, 1997. Other claims were

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rejected as obvious over Mahapatro in view of U.S. Patent No. 6,578,005 to LeSaint et al. (hereinafter "LeSaint"); Mahapatro in view of U.S. Patent No. 6,725,428 to Pareschi et al. (hereinafter "Pareschi"); Mahapatro alone; or the combination of Mahapatro in view of Pareschi, and in further view of LeSaint. The same exhibits submitted in the previous Declaration are submitted in this Supplemental Declaration and maintain the same exhibit numbers. Exhibit 1 has added sheets that were recently located corresponding to a presentation of the invention under confidentiality before the January 21, 1997 effective date of Mahapatro. Any new exhibits are given numerical designations followed by a letter. Exhibit 1A is a new exhibit that is chronological in date before Exhibits 1 and 2. Exhibit 1B is a new exhibit that is chronological in date before Exhibits 1 and 2, but after Exhibit 1A. Exhibit 2A is chronological in date after Exhibits 1, 1A and 1B, but before Exhibit 2. Exhibit 2B is chronologically in date about the same time as Exhibit 2. Dates are now associated with Exhibits 3, 4 and 5, which are dated after January 21, 1997, the effective date of Mahapatro. New Exhibit 3A is correspondence and presentations of the invention, showing high level details of the invention, and showing work

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accomplished in the first half of 1997. Exhibit 3B is dated chronologically before Exhibit 3 but after Exhibit 3A, and showing part of a business plan and reflecting additional development.

3. We conceived the subject matter of the above-identified patent application while working at MasterLink Corporation in Orlando, Florida, United States, prior to January 21, 1997, the effective date of Mahapatro.

4. We worked diligently from a time prior to January 21, 1997 to reduction to practice of the claimed invention set forth in claims 1-49 for a computer implemented method and system for managing mobile workers. We worked diligently from before the effective date until we reduced to practice as a working software prototype in April 1999, the computer implemented method and system as now claimed. The invention as reduced to practice classifies within a database of a computer a plurality of target objects that correspond to facilities assets to be worked on by a mobile worker. The attributes of each target object are defined, including tasks to be performed on each target object. Mobile workers are scheduled for the tasks to be performed by running a rule engine to determine the algorithms and heuristics to be used

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to schedule mobile workers for the tasks to be performed. A schedule of jobs is output to the mobile workers.

5. In another aspect of the present invention we reduced to practice in April 1999, user configured system agents and software components are built and automate the system environment for managing mobile workers. The system agents and software components are configured with user configured settings of a policy database that are reflective of a particular business.

6. A job classification can be created within a planning agent module corresponding to a collection of tasks to schedule. The workers' skills and material are required to complete the tasks. Based on a plurality of rules contained within the rule engine, the workers' skills are matched with the tasks to be scheduled. A schedule for the mobile worker management is output. Different algorithms can be run as claimed.

7. A simulator database can also be established for running a simulator program to establish policy values in a simulation of the working of a system environment to determine optimum policy values for a given business.

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8. The initial conception and beginning development of the present invention is reflected in Exhibits 1A, 1B, 1, 2A, 2B and 2. Exhibits 1, 2A, 2B and 2 are copies of presentation documents that show how target objects can be classified, algorithms and heuristics of a rule engine used, system agents developed, and schedules output. These documents were drafted by inventor, Garry Fenimore. Exhibits 1A, 1B, 1, 2A, 2B and 2 reflect work accomplished before January 21, 1997, the effective date of Mahapatro. Attributes of target objects are defined, including tasks to be performed for scheduling the mobile workers. A rule engine is run to determine algorithms and heuristics to be used to schedule mobile workers while outputting a scheduled job to the mobile worker.

9. Exhibit 1A is a paper prepared by inventor, Garry Fenimore, and presenting a conceptual specification that discloses the concept of the software and the system and method for linking management to a mobile worker with a client-server application. Other details of the present invention are set forth. Pages 1-9, and more particularly, pages 5-9, show the basic framework of the claimed invention used for classifying the database target objects and defining attributes of each target.

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Mobile workers are scheduled by running a rule engine to determine algorithms and heuristics to be used to schedule mobile workers for the tasks to be performed. The scheduled jobs are output. Other details in the Exhibit concern the configuration of system agents and software components with user configured settings.

10. Exhibit 1B shows a number of use-case scenarios for job creation, job execution, job scheduling, management reporting, and system initiation. This exhibit shows that further development occurred to create the different scenarios as part of the management system and software.

11. Exhibit 1, pages 7-10, are class diagrams that show which software definitions are required for each of a target definition class, tasks definition class, resource class, and job class. Page 11 of Exhibit 1 shows the problems associated with prior art paper-based systems. An improvement of the present invention formulates a policy with templates, reduces manual roles, automates planning, scheduling and dispatching, including two-way communication and mobile worker support teams through which a schedule of jobs can be output to the workers.

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12. Exhibit 2A includes presentation documents made under confidentiality to Maintenance and Diagnostics, LLC showing further work regarding how the software is operative as a process-focus job management system using active system agents to automate supervisory processes. Flexible rules "policy" control system agents link workers to job information. The system agents can automate supervisory processes using the flexible rules as policy rules for determining jobs, resources, and work schedules using job life cycles, target definitions, task definitions, together with job management rules and a job manager agent.

13. Exhibit 2B includes a group of presentation documentations presented under confidentiality to Lockheed Martin Information Systems and showing correspondence and further development. These documents show that the core work management system can include work orders, resources and work schedules and include a knowledge-based specification implementation with management, skilled worker and customers.

14. Exhibit 2 is a group of presentation documents used in confidential presentations given in October 1996, and in subsequent months, and showing different target definitions and task definitions that are input into policy rules. These rules

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include planning, scheduling and dispatching rules. Target definitions are operative with the policy rules. Each of the rules is operative with agents, for example, a planner, scheduler, and dispatcher agent. Work schedules, available resources, and jobs to be performed are output.

15. From January 21, 1997, the effective date of Mahapatro, we diligently continued our work on developing three major elements for a system architecture, a physical architecture for the distributed intelligent work management system, and job state transitions. From the time of conception and development of the invention shown in Exhibits 1A, 1B, 1, 2A, 2B and 2, we worked weekly from before the January 21, 1997 effective date of Mahapatro for almost two years to build the base of intelligent agents and provide the foundation for the reduced to practice software. We spent many hours each week looking at different approaches for doing scheduling algorithms and wrote many documents and prototype code in C++. Inventor Levine had joined inventor Fenimore after Fenimore's initial work on the initial documents shown in Exhibits 1A, 1B, 1, 2A, 2B and 2, and conceived and wrote code for much of the different rule engines, including the algorithms.

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16. During this almost two-year period, we worked every week in an object-oriented programming environment and drafted code for different objects and developed the rule engines to determine algorithms and heuristics. This weekly work included the drafting of extensive code for classifying target objects, communication links, automated work planning and scheduling tasks, and rule engine algorithms. Examples of algorithms that were developed and set in code at this time include a forward chaining rule with different rule sets for each system agent, primary scheduling algorithms and its parameters, brute force scheduling algorithms, and round robin scheduling algorithms. We also worked-out what type of utility and priority any different jobs would have and also developed the structure and rules for a historical database and a system log. We also drafted code for building definitions of targets and their tasks. In this almost two-year period, we drafted and revised thousands of lines of code for the present invention. Some of the over diligent work is reflected in other submitted documents, showing continued development.

17. Exhibit 3A includes further presentation documents that were presented under confidentiality to Lockheed Martin

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Information Systems. Basic aspects of the physical architecture of the software for distributed workflow management system are set forth in accordance with the present invention with the vertical domain workflow management application, the MasterLink collaborative agent workflow framework, the interference/constraint engine libraries, the object request broker, class libraries, language compiler and operating system.

In April 1997, we had to address certain problems of current approaches and deficiencies and how the present invention would overcome these problems. We also worked on job state transitions in April 1997 through July 1997 and continued to work diligently on integrating the work technologies with a data-centered process management and target task definitions, work target definitions, target design data definitions, and work force optimization. Although these presentation documents are higher level documents, much work was continuing with the coding of the software at this time.

18. We continued working weekly and by 1998, we had developed a business plan as shown in Exhibit 3B, which reflects the development that we had accomplished and that a complete business plan was possible. The artificial intelligence of the

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present invention includes the use with the different planner, scheduler, dispatcher and job management agents and the different definitions such as the job types, job state transitions, tasks, targets, skills, work schedules and rules that can be contained in a database. We developed a system configuration that would best be used for the software and set forth the work scheduling and execution and what logical improvements could be accomplished.

19. Exhibit 3 of December 1998 is information that we forwarded under confidentiality to Technical Research Development Authority. These pages include high level pseudo-code and code abstracts that show high level logic flow representative of the thousands of lines of code that we drafted for the present invention. Exhibit 3 shows high level details of the type of workflow involved with the system architecture using different target and task definitions and rules and agents. The relationship between the physical architecture and the intelligent work management system, for example, is shown on page 18.

20. Page 19 of Exhibit 3 illustrates job state transitions and pages 20-25 show different classes, including the

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location class, resource class, task definition class, target definition class, action definition class, and policy class. As noted before, Exhibit 3 is a high level representation showing the logic in the thousands of code lines that we developed in the about two year period from prior to the effective date of Mahapatro.

21. We worked diligently every week up to April 1999 to refine the code we wrote, and also developed code for the scheduling function, as set forth in Exhibit 4. By this time, we had developed and reduced to practice the prototype software for all aspects of the claimed invention that was demonstrated and reported in a Confidential Brief of the Assessment of MasterLink Prototype Software Demonstration as shown in Exhibit 5. This brief is an assessment of the prototype software demonstration. Although dated in June 1999, this assessment is based on the prototype trial of the software that had been reduced to practice by April 1999.

22. We later worked diligently to refine the software and enhance operation of simulation sections, including different agents, and the intelligent work management and later filed a patent application of the reduced to practice invention.

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23. We hereby declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

15-Nov-2004
Date

Garry Fenimore
GARRY FENIMORE

Date

KENNETH M. LEVINE

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Date

11/13/04

Date

GARRY FENIMORE

Kenneth M. Levine

KENNETH M. LEVINE